

MATHS CHALLENGE 6



RALPH:

Hello there, time for another **Maths Challenge**, the quiz that puts your mental muscle into miracle mode and proves once and for all that mental maths is not mental misery! OK a pencil and paper is all you need for this quiz.

Matrix, what is today's mathematical meaning?

MATRIX:

Equilateral. In maths an 'equilateral' shape, or figure, has sides which are all the same length.

RALPH:

So an equilateral triangle is a triangle which has three equal sides?

MATRIX:

Correct!

RALPH:

And that must mean that if you know that an equilateral triangle has a sides five centimetres long then you can work out the perimeter of the triangle by multiplying five centimetres by three, which equals 15 centimetres. OK let's kick off with our usual starting round, which is of course...

Round 1 – Beat the clock!

And get ready to write the answer down because here comes question 1...

If the perimeter of an equilateral triangle is 24cm how long is each side?

Question 2. How many 5p coins in £3?

Question 3. What is 10% of £1.50?

Question 4. How many grammes in a quarter of a kilogram?

Question 5. A piece of wood is four times longer than 4.5cm. How long is it?

Question number 6. How many days in the month of September?

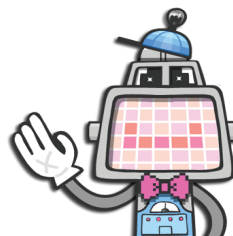
Question 7. What is 10×1.05 ?

Question 8. If $2K + 1 = 11$, what is K?

Ninth question. How many triangles are there on the square-based pyramid?

And last of all - tenth question. What is the smallest number which you can divide exactly by 4 and by 6?

Let's find out how you did and here's Matrix to give us...





MATRIX: The answers!

RALPH: Number 1.
MATRIX: Answer: 8cm.

RALPH: Number 2.
MATRIX: Answer: 60.

RALPH: Number 3.
MATRIX: Answer: 15p.

RALPH: Number 4.
MATRIX: Answer: 250.

RALPH: Number 5.
MATRIX: Answer: 18cm.

RALPH: Number 6.
MATRIX: Answer: 30.

RALPH: Number 7.
MATRIX: Answer: 10.5.

RALPH: Number 8.
MATRIX: Answer: 5.

RALPH: Number 9.
MATRIX: Answer: 4.

RALPH: And finally - number 10.
MATRIX: Answer: 12.

RALPH: One or two difficult ones there I think! You definitely needed the old mental muscle to be at full strength that round! Time to work out your score. One point for each correct answer. Add up your score for Round 1!

Well that's the first round out of the way, which means we can go on to...

Round 2 – Beside the seaside!

Right here we are - smell that sea air! I can't think of anything more relaxing than a weekend by the sea. Well, it's a bit late when we arrive on Friday evening so after a walk along the promenade you decide to buy some postcards.

MATRIX: We'll be back home before the postcards arrive!

RALPH: Well you've promised to send all your friends one - all 24 of them. You find some postcards for 6p each. Here's the first question then. If Matrix buys 24 postcards at 6p each how much do they cost altogether? 6p each and he buys 24 of them. How much do they cost altogether? Work out your answer and write it down now.





RALPH: Well Matrix, if the sea air hasn't gone to your head, tell us how much those postcards cost.

MATRIX: Each postcard cost 6p. So 24 postcards will cost $24 \times 6p$. Which = 144p or £1.44.

RALPH: £1.44 - that's the answer we're looking for and it's the only answer that will get you five points. No other answer will do.

So, on to day two then, Saturday! And you're in luck - it's the most beautiful day! Sea breaking gently on the beach - an ideal day for windsurfing! Now your mother has given you £50 to buy a second-hand windsurfer board and sail...the problem is you're going to have to pay the money back.

And here's the second question. You've got £10 already saved which you can give to her. Then you're going to have to pay the rest back at £2.50 per week. What I want to know is, how many weeks will it take you to pay back all the money? Listen again - you borrow £50. You pay back £10. How much do you still owe once you've done that? Work that out and keep the new amount in your head.

OK. So that's the amount you've got to pay back at £2.50 per week. How many weeks is it going to take?

OK, Matrix, let us know how many weeks it's going to take to pay back all the money.

MATRIX: You borrowed £50 and you paid back £10. So that leaves £40 to pay back at £2.50 per week. So it must take 16 weeks to pay the money back.

RALPH: 16 weeks is the answer. Five points if that's the answer you got. No points at all if you didn't get it.

Now, on Sunday the weather is terrible: non-stop wind and rain. So you go to the amusement arcade on the pier. Now you head straight to the pinball machine and put your money in the slot. Now pay close attention, Challengers, because here comes question three.

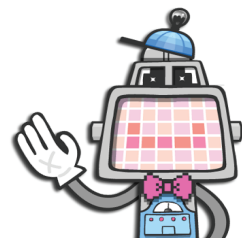
You take your first pull on the machine. Well - you score 15 points. Keep that number in your head, 15 points. Second pull then. Better! 35 points this time. In your head, add the 35 to the 15 you got the first go - and remember the new total.

Third pull then. Wow! This time you got a staggering 40 points. 40 points! Work out the new total - mental muscle don't forget!

And here comes your final go. 25 points. Not one of your best scores. 25 points. OK, so now work out the total for the four pulls and when you've got the answer write it down.

Well, Matrix, give us the answer.

MATRIX: $15 + 35 + 40 + 25$ makes a total score of 115 points.





RALPH: 115 is the correct answer. Give yourselves five points if you got it right. So that's the end of the round. Work out your score so far!

I wonder if anyone has scored the maximum points for round one and two? Well done if you did. Well of course one round left to go and it has to be...

Round 3 - Juggling numbers!

In case you don't yet know, the rules for juggling numbers are simple. Matrix is going to select three numbers. Now what you have to do is juggle them around - you can add them, subtract them, multiply or divide them - in order to make them result in the target number. Right then, pencils ready to write down the numbers. Numbers please, Matrix!

MATRIX: 9, 3 and 7.

RALPH: 9, 3, and 7. And the target number?

MATRIX: 10.

RALPH: 10 it is. Now you've 30 seconds to juggle the numbers 9, 3, 7 to arrive at the target number of 10. Work it out in your head. Start juggling those numbers now.

OK, pencils down, because time's up. Matrix, tell us the answer.

MATRIX: $9 \div 3 = 3$; $3 + 7 = 10$ - which is the target number!

RALPH: Well that was easier than I thought! $9 \div 3 = 3$. Add on the 7 and you have a total of 10. And you score 10 points if you got that right. If you think you've found another way of doing it, ask your teacher to look at it later on. If you didn't get that one right, here's another chance. Take it away, Matrix!

MATRIX: 4, 7, and 28.

RALPH: Write them down. 4, 7, and 28. And the target number?

MATRIX: 49.

RALPH: 49. Right it's up to you then. Try to make 49 by juggling the numbers 4, 7 and 28. You've got one minute to come up with the answer, starting now.

I'd say that one was a bit harder. Well, how is it done, Matrix?

MATRIX: $28 \div 4 = 7$; $7 \times 7 =$ the target number of 49!

RALPH: 10 points if you got the answer and remember, if you found another way to reach that target number, get your teacher to check it in a moment. Right, that was the final question of today's quiz. What you have to do is add up your total score for the contest. What Matrix has to do is say...

MATRIX: Goodbye! Till next time!

